

### **DETAILED ACTION**

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 09/29/2009 has been entered. Claims 2 and 4 is cancelled. Claims 1 and 3 are now pending. New ground rejection applied.

### ***Claim Rejections - 35 USC § 103***

2. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

3. Claims 1 and 3 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kikuchi et al. ("Porous Body Preparation of Hydroxyapatite/Collagen Nanocomposites for Bone Tissue Regeneration, Key Engineering Materials, Vols 254-256 (2004), pp 561-564).

Kikuchi disclose elastic porous bodies were fabricated from hydroxyapatite/collagen nanocomposite fibers by lyophilization with the use of collagen as a binder (Abstract). The composite fibers, collagen solution and water are mixed and gelled. The gelled mixtures are frozen at -10, -20, -30, -40 and -80°C respectively and lyophilized followed by cross-linkage (Materials and Method, lines 6-8, pp562). The mean pore size increases with increasing freezing temperature. The pore in the porous body prepared by lyophilization is formed by removal of ice crystals between the Hap/Col fibers, i.e., the pore size depends on growth behavior of the ice crystals. The rapid decreasing of temperature (e.g. shorter solidification time) of the gelled mixture resulted in a large amount of ice crystals and ice crystals between the fibers became

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smaller (read on solidification time vs. pore size relation) (Results and Discussion, lines 1-4, pp 562). Kikuchi clearly disclose using freezing temperature to control the pore size of the fibrous apatite/collagen composite, which is the same conclusion from Fig. 3 of instant application.

Kikuchi is silent on charting solidification time,  $S_b$ , vs. average pore diameter,  $D_{av}$  and freezing-environment temperature,  $T_0$ , vs. solidification time.

Since Kikuchi clearly disclose using freezing temperature to control the pore size of the fibrous apatite/collagen composite and the relationship between solidification time vs. pore size, the solidification time  $S_b$  can also be measured and use it to plot the charts of  $S_b$  vs.  $D_{av}$  and  $T_0$  vs.  $S_b$ . For a system that the complete solidified state can not be easily monitored, the  $S_b$  is a convenient indicator for the completion of solidifying treatment.

In light of such benefit, it would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains to utilize the solidification time and freezing-environment temperature chart to control the pore size.

### ***Response to Arguments***

4. Applicant's arguments with respect to claim 1 have been considered but are moot in view of the new ground(s) of rejection.

### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Chun-Cheng Wang whose telephone number is (571)270-5459. The examiner can normally be reached on Monday to Friday w/alternate Friday off.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Wu can be reached on 571-272-1114. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Ling-Siu Choi/  
Primary Examiner, Art Unit 1796

/Chun-Cheng Wang/  
Examiner, Art Unit 1796

/CCW/